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1 A method for programming wireless subscriber terminals in a wireless system, the
2 wireless system having a base station in wireless communication with the wireless
3 subscriber terminals using one or more control channels and multiple traffic channels,
4 and each wireless subscriber terminal having a memory, a non-volatile memory, a
5 processor, and an original control program running on the processor to control operation
6 of the wireless subscriber terminal, the method comprising the steps of:

7 A. initializing one or more participating wireless subscriber terminals from
8 the base station, using a control channel, to receive a complete program over a
9 selected control channel;

10 B. transmitting a complete program from the base station using the selected
11 control channel, the complete program comprising a plurality of program
12 segments communicated to the wireless subscriber terminals in separate
13 messages;

14 C. verifying that each participating wireless subscriber terminal has received
15 the complete program;

16 D. storing the complete program in the non-volatile memory of each
17 participating wireless subscriber terminal as a new control program; and

18 E. transferring control of each participating wireless subscriber terminal to
19 the new control program.

1 2. The method of claim 1, wherein the step of verifying further comprises the steps
2 of:

3 A. polling each participating wireless subscriber terminal, using one or more
4 control channels, to determine whether any participating wireless subscriber
5 terminals have not received any program segments; and

6 B. retransmitting from the base station the program segments that any
7 participating wireless subscriber terminals have not received.

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1 3. The method of claim 2, wherein the unreceived program segments are
2 retransmitted over one or more point-to-point control channels.

1 4. The method of claim 2, wherein the unreceived program segments are
2 retransmitted over one or more broadcast control channels.

1 5. The method of claim 2, wherein the unreceived program segments are
2 retransmitted over one or more traffic channels.

1 6. The method of claim 1, wherein the step of verifying further comprises the step of
2 performing a series of diagnostic tests at each participating wireless subscriber terminal to
3 determine the validity of the new control program received at that wireless subscriber
4 terminal.

1 7. The method of claim 1, further comprising the step of storing each program
2 segment received by the wireless subscriber terminal in the non-volatile memory of the
3 wireless subscriber terminal, whereby the wireless subscriber terminal retains all received
4 program segments if reception of program segments by the wireless subscriber terminal is
5 interrupted.

1 8. The method of claim 1 further comprising the step of storing the original control
2 program in non-volatile memory after transferring control of the processor to the new
3 control program.

1 9. The method of claim 1 wherein the control program and the new control program
2 each comprise a software patch for controlling less than all of the operations of the
3 wireless subscriber terminal.

1 10. The method of claim 1 wherein the wireless subscriber terminal is a cellular
2 phone.

1 11. The method of claim 1 wherein the wireless subscriber terminal is a terminal of a
2 wireless local loop.

1 12. The method of claim 1 wherein the step of transferring control to the new control
2 program is forced by the base station during the step of initializing each wireless
3 subscriber terminal.

1 13. A system for programming wireless subscriber terminals, the system comprising:
2 a base station, the base station having a memory;
3 a control program stored in the memory of the base station;
4 one or more wireless subscriber terminals in wireless communication with the
5 base station over an air interface, the air interface comprising a plurality of traffic
6 channels and a plurality of control channels;
7 means for initializing the one or more wireless subscriber terminals, using the
8 control channels, to receive the control program;
9 means for broadcasting the control program to the one or more wireless subscriber
10 terminals;
11 means for verifying that each initialized wireless subscriber terminal has received
12 the control program; and
13 means for transferring control of each initialized wireless subscriber terminal to
14 the control program.

1 14. The system of claim 13, wherein the one or more wireless subscriber terminals
2 comprise cellular phone handsets.

1 15. The system of claim 13, wherein the one or more wireless subscriber terminals
2 comprise wireless local loop terminals.

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1 16. A base station for programming one or more wireless subscriber terminals in a
2 wireless system, the base station comprising:
3 a memory;
4 a control program stored in the memory as one or more program segments;
5 a transmitter for transmitting forward messages to wireless subscriber terminals
6 over an air interface, the forward messages including the one or more program segments
7 stored in the memory;
8 a receiver for receiving reverse messages from wireless subscriber terminals over
9 the air interface; and
10 a processor connected to the memory, the transmitter, and the receiver for
11 controlling operation of the base station.

1 17. The base station of claim 16, the forward messages including broadcast firmware
2 start messages and the reverse messages including broadcast firmware start response
3 messages.

1 18. The base station of claim 16, the forward messages including broadcast firmware
2 status request messages and the reverse messages including broadcast firmware status
3 messages.

1 19. The base station of claim 16, the forward messages including firmware switch-
2 over messages.

1 20. A method for operating a base station to program one or more wireless subscriber
2 terminals in a wireless system, the method comprising the steps of:

3 A. initializing a plurality of wireless subscriber terminals, using a control
4 channel, to receive a control program;

5 B. broadcasting the control program to the plurality of wireless subscriber
6 terminals;

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7 C. verifying that each one of the plurality of wireless subscriber terminals has
8 received the control program; and

9 D. transferring control of each one of the plurality of wireless subscriber
10 terminals to the control program.

1 21. The method of claim 20, the step of initializing further comprising the steps of
2 transmitting a broadcast firmware start message to each wireless subscriber terminal over
3 one or more forward channels and receiving a broadcast firmware start response message
4 from one or more participating wireless subscriber terminals over one or more reverse
5 channels.

1 22. The method of claim 20, the step of broadcasting further comprising the step of
2 transmitting one or more broadcast firmware block messages over a broadcast channel.

1 23. The method of claim 20, the step of verifying further comprising the steps of:
2 A. transmitting a broadcast firmware status request message to one or more
3 participating wireless subscriber terminal over one or more forward channels;
4 B. receiving a broadcast firmware status message from one or more of the
5 one or more participating wireless subscriber terminals;
6 C. retransmitting any missing program segments to the one or more
7 participating wireless subscriber terminals.

1 24. A wireless subscriber terminal for use in a wireless system, the terminal
2 comprising:
3 a memory;
4 a transmitter for transmitting reverse messages from the terminal over an air
5 interface, ;
6 a receiver for receiving forward messages from a base station, the forward
7 messages including the one or more program segments; and

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8 a processor connected to the memory, the transmitter, and the receiver for
9 controlling the terminal, and for storing the one or more program segments in the
10 memory.

1 25. The terminal of claim 24 wherein the forward messages include broadcast
2 firmware start messages and the reverse messages include broadcast firmware start
3 response messages.

1 26. The terminal of claim 24 wherein the forward messages include broadcast
2 firmware status request messages and the reverse messages include broadcast firmware
3 status messages.

1 27. The terminal of claim 24 wherein the forward messages include firmware switch-
2 over messages.

1 28. The terminal of claim 24 wherein the forward messages including the one or more
2 program segments are broadcast messages.

1 29. A method for operating a wireless subscriber terminal in a wireless system to
2 receive a control program, the method comprising the steps of:

- 3 A. initializing a terminal, using a control channel, to receive a control
4 program, the control program comprising a plurality of control program segments;
5 B. receiving a broadcast comprising the plurality of control program
6 segments;
7 C. verifying that the terminal has received all of the control program
8 segments; and
9 D. transferring control of the terminal to the control program.

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1 30. The method of claim 29, the step of initializing further comprising the steps of
2 receiving a broadcast firmware start message over a forward channels and transmitting a
3 broadcast firmware start response message over a reverse channel.

1 31. The method of claim 29, the step of receiving a broadcasting further comprising
2 the step of receiving a plurality of firmware block messages over a broadcast channel.

1 32. The method of claim 29, the step of verifying further comprising the steps of:

2 A. receiving a broadcast firmware status request message over a forward
3 channels;

4 B. transmitting a broadcast firmware status message over a reverse channel,
5 the broadcast firmware status message identifying any missing control program
6 segments;

7 C. receiving any missing control program segments identified in the
8 broadcast firmware status message.

1 33. The method of claim 29, the step of transferring control further comprising the
2 step of receiving a firmware switch-over message.

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